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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

HOANG, TU BA

ART UNIT PAPER NUMBER

3742

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/621,415 | Applicant(s) NEWCOMB ET AL. | |
| | Examiner Tu Ba Hoang | Art Unit 3742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-73 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 28-73 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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Priority

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "cooling element arranged on a lower surface of the housing" as recited in claims 41 and 59, the "gas manifold to flow gas around the cooling element" as recited in claims 44 and 63, the "control unit electrically connected to the cooling element" as recited in claims 45 and 64, the "indicator light coupled to the cooling element" as recited in claim 46 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The amendment filed 07/18/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "a cooling element arranged on a lower surface of the housing" in the manner recited in claims 41 and 59, "a gas manifold to flow gas around the cooling element" as recited in claims 44 and 63, "a control unit electrically connected to the cooling element" as recited in claims 45 and 64, "an indicator light coupled to the cooling element" as recited in claim 46.

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Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 41-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is noted while the disclosed and cited manifold can be interpreted as some type of cooling element with blowing gas or air. However, as previously indicated, the claims as being best understood are now recited a cooling element arranged on a lower surface of the housing which is not the same as a gas manifold arranged adjacent a surface of the housing as disclosed and previously claimed. Furthermore, it is clear that these two elements are intended to be different from one to another since they have been claimed in combination, as evidence, noting claims 43 and 44. Thus, the cited cooling element as indicated is clearly a new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28-73 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each one of claims 28 and 41 recites limitations "the housing" in line 4 (claim 28) and "the optical system" in lines 6-7 (claim 28). There are insufficient antecedent bases for these limitations in the claim since they are only appeared in the preamble of the claim and have not been positively cited as parts of the claimed apparatus. Such limitations should be positively cited in combination with the claimed apparatus. It is also noted that the phrase "to create a stable thermal environment" recited at line 6 in claim 28 renders the claim indefinite because it is unclear for which would create the stable thermal environment since with only the heater recited, only thermal gradient with temperature increased can be formed but unstable. It is further noted that as disclosed in the specification, an insulating blanket covers a portion of the optical system to uniformize the heating of the optical system and increase efficiency of the apparatus, in which the gas in the filled spaces is heated so that the warm gases reside near the upper portion of the system while the cooler gases reside near the lower portion of the system, in which this creates a stable thermal environment within the lens elements.

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In claim 31, there are insufficient antecedent bases for "the optical housing" recited at line 2 and "the lower surface" recited at line 3 in the claim or from the preceding claim.

In claim 32, "the operation thereof" recited at line 2 is considered indefinite and lacks antecedent basis from the preceding claim. Such operation should clearly be defined (also note in claims 45, 58 and 64).

In claim 35, there is insufficient antecedent basis for "the air manifold" recited at line 1 in the claim or from the preceding claim. The word "air" should be replaced by "gas" (also note in claim 47).

In claim 36, the use of Trade Mark "Poron®" at line 2 is unacceptable. It should be replaced by the generic term such as "flexible insulation".

In claim 39, there is insufficient antecedent basis for "the insulating layer" recited at lines 1-2 from the preceding claim.

In claim 44, there are insufficient antecedent bases for "the optical housing" recited at line 2 and "the upper surface" recited at line 4 from the preceding claim. It is also noted there is unclear for where "heating" recited at line 3 come from since there is no heating being recited. Should a heating element be cited to provide a complete claim?

In claim 48, there is insufficient antecedent basis for "the insulating layer" recited at lines 1-2 from the preceding claim. It is also noted that the use of Trade Mark "Poron®" at line 2 is unacceptable. It should be replaced by the generic term such as "flexible insulation".

In claim 51, there is insufficient antecedent basis for "the heater" recited at line 2 in the claim or from the preceding claim.

In claims 53 and 59, there is insufficient antecedent basis for "the vertical direction" recited at line 7 in the claim since as noted at line 5, only "gas-filled spaces" were previously cited but not "one or more spaces" latter recited at line 7.

In claim 55, there is insufficient antecedent basis for "the gas-filled space" recited at lines 1-2 from the preceding claim since there are a plural of spaces recited (also note in claim 61).

In claim 57, there are insufficient antecedent bases for "the optical housing" recited at line 2 and "the lower surface" recited at line 3 from the preceding claim.

In claim 62, there is insufficient antecedent basis for "the upper surface" recited at line 3 in the claim or from the preceding claim.

Claim 63 is indefinite as for the similar reason set forth in claim 44 above.

Claim 65 is unclear noting the phrase "...within the one or more gas-filled spaces.." recited at line 6. It is unclear for what to be within the spaces. Is it the gas or the optical system? Clarification is needed.

In claim 66, "the lower surface portion" recited at line 3 and "the upper portion" recited at line 4 are undefined and lack antecedent bases from the preceding claim 65.

In claim 68, there is insufficient antecedent basis for "the step of detecting image stability" recited at lines 1-2 from the preceding claim 65.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 28, 30-40, 53, and 55-58 are rejected under the judicially created doctrine of double patenting over claims 1, 2-12, 13, and 14-17 (in the respective order) of U. S. Patent No. 6,617,555. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences between the two sets of claims are that, for example, the claims of the instant application recite "a heater arranged....to create a stable thermal environment within the optical system", whereas the claims of the patent merely recite "a heating element arranged....and an insulating layer arranged over at least a portion of the housing to create a stable thermal environment within the optical system". Further, the claims of the instant application (i.e., claim 53) recite "an illumination system....; a heater arranged on an upper surface of the housing to provide a small thermal gradient with temperature increased in the vertical direction in one or more gas-filled spaces between lens elements; and ...", whereas the claims of the patent (i.e., claim 13) merely recite "a illumination system....; a heating element arranged on an upper surface of the housing to provide heat to one or more gas-filled spaces between lens elements of the optical system; and an insulating layer...". Since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent because the claims of the instant application are merely broader than the claims of the patent. The claims of the patent clearly anticipate the application claims. Thus, the two sets of claims are not patentable distinct.

Claims 29, 54, and 65-73 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 13, and 18, 21-27 of U.S. Patent No. 6,617,555. Although the conflicting claims are not identical, they are not patentably distinct from each other because the

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recitation of "a heater arranged...to provide a small thermal gradient with temperature increases in a vertical direction in one or more gas-filled spaces" in the instant application is merely the same or obviously equivalent to the recitation of "a heating element arranged...to provide heat into one or more gas-filled spaces" in the patent claims since "small thermal gradient with temperature increases in a vertical direction" can be interpreted the same as "heat" and furthermore, the recitation of "an insulation layer arranged...to facilitate the *temperature change of the gas* present within the one or more spaces to create a stable thermal environment within the optical system" recited in the claims of the instant application is equivalently the same as "an insulating layer arranged..... to facilitate *the heating of the gas* present within the one or more spaces to create a stable thermal environment within the optical system" as recited in the patent claims since it is clearly by "heating of the gas", the temperature of the gas is inherently changed. Additionally, the recitation of "*heating a top portion of an optical system* or cooling the bottom portion of the optical system so that gas in one or more gas-filled spaces of the optical system has a temperature gradient that increases the temperature from the bottom to the top of the optical system within one or more gas-filled spaces to form a stable thermal environment within the gas-filled spaces" as recited in the application claims (claim 65) is (in one of the alternative) obviously the same as "*heating the optical system so that gas in one or more gas-filled spaces of the optical system is heated so as to maintain a temperature differential* within the one or more gas-filled spaces" as recited in the patent claims (claim 18) since as gas is heated to maintain such temperature differential, the gas inherently has its temperature gradient that would increase from top to the bottom or vice versa.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Simpson (US 4,267,434), Straaijer et al (US 5,602,683), Brink et al (US 6,084,673), Sumiyoshi (US 6,256,086), Loopstra et al (US 6,509,951), Suenaga et al (US 6,452,723), Nishi (US 6,545,746), Suenaga et al (US 6,646,797), and Bragard (EP 0,349,511).

The following is a statement of reasons for the indication of allowable subject matter the prior art of record does not show or fairly suggest an apparatus for providing image stabilization for an optical system or such as a lithographic system and method thereof, wherein at least a gas-filled space between lens of the system is heated and a stable thermal environment within the gas-filled space of the optical system is created by a combination at which with cooling (i.e. gas manifold) provided at the bottom or lower portion of the housing.

It is noted that while Straaijer (US 5,602,683) discloses a lens system with lens elements arranged in a gas-filled holder, the gas filled spaces between the lens elements are not heated but added with small quantity of ozone with the gas has a low refractive index for reducing the influence of variations of ambient parameters on the optical behavior. Sumiyoshi discloses that the refractive index

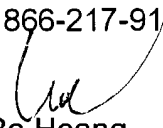
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of gas between lens elements can be changed by changing the pressure or temperature of the gas thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (703) 308-3303. The examiner can normally be reached on Mon-Fri from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu Ba Hoang
Primary Examiner
Art Unit 3742

August 16, 2004